Clinical and Translational Allergy

POSTER DISCUSSION PRESENTATION Open Access

Respiratory allergens in human milk: potential impact on susceptibility to allergic airway disease

Patricia Macchiaverni[1*†], Akila Rekima[2†], Mathilde Turfkruyer[2], Laurent Mascarell[3], Sabi Airouche[3], Philippe Moingeon[3], Karine Adel-Patient[4], Antonio Condino-Neto[1], Isabella Annesi-Maesano[5,6], Susan L Prescott[7,8], Meri K Tulic[2,7,8], Valérie Verhasselt[2,8]

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Background

Impact of exposure to environmental allergens during early life on allergic sensitization and disease development is controversial.

Objective

We investigated whether airborne allergen from *Dermatophagoides pteronyssinus* (Der p), a major cause of allergic asthma, is found in human breast-milk and examined its impact on allergic outcome in a mouse model.

Methods

Der p 1 was quantified in human colostrum and milk samples from Brasil, Australia and France by ELISA. Basophil degranulation assay was used to confirm immunogenicity of Der p. BALB/c mice were fostered by mothers exposed to Der p during lactation. Progeny allergic response to Der p was measured at 6-weeks.

Results

Der p 1 was present in 58% Brazilian, 70% French, and 78% Australian colostrum. Median [Der p 1] was similar between countries (96 pg/mL). In mature milk, Der p1 was found in 55% of samples, median [Der p 1] was 65·9 pg/mL and was significantly lower than in colostrum (p=0·0001). Der p 1-containing milks were able to induce basophils degranulation. Mice breastfed by Der p-exposed mothers had 5-fold increased levels of Der p specific IgE and IgG1 compared to mice breastfed by naïve mothers. Their allergic airway inflammation was not affected.

Conclusion

Early life exposure to ubiquitous respiratory allergens can take place through breastfeeding. An animal model mimicking the human situation shows early life exposure to Der p through milk primes the immune system. The presence of respiratory allergens in breast-milk may be an important factor in driving the early immune function towards allergic disease.

Authors' details
[1]Institute of Biomedical Sciences, University of São Paulo, São Paulo, Brazil. [2]EA 6302 "Tolérance Immunitaire", Université de Nice Sophia-Antipolis, Hôpital de l'Archet, Nice, France. [3]Research and Development, Stallergenes SA, Antony, France. [4]INRA, UR496 Immuno-Allergie Alimentaire, CEA/IBiTeC-S/SPI, CEA de Saclay, F-91191 Gif sur Yvette cedex, France. [5]EPAR UMR-S 707 INSERM, France. [6]EPAR UMR-S 707 UPMC Paris6, Medical School Saint-Antoine, Paris, France. [7]School of Pediatrics and Child Health, University of Western Australia, Perth, Australia. [8]The International Inflammation "in-FLAME" Network, Worldwide Universities Network (WUN).

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† Contributed equally
[1]Institute of Biomedical Sciences, University of São Paulo, São Paulo, Brazil
Full list of author information is available at the end of the article